

Publications of Professor Ch. Schwab (as of March 1, 2011)

Books

1. *p*- and *hp*- Finite element methods. Theory and Applications in solid and fluid mechanics, Oxford Univ. Press (1998).
2. Randelementmethoden (with S. Sauter) Teubner-Verlag, Wiesbaden (2004).
3. Boundary Element Methods (with S. Sauter) Springer-Verlag, Heidelberg (2010).

Chapters in books

1. "hp-FEM for Fluid Flow Simulation" - pp. 325–438 in: "High-Order Methods for Computational Physics" T. Barth and H. Deconinck (Eds.), Vol. **9** of Lecture Notes in Computational Science and Engineering, Springer Verlag, 1999.
2. Hierarchic Modelling in Mechanics, pp. 85-156 in "Wavelets, Multilevel Methods and Elliptic PDEs", M. Ainsworth, J. Levesley, W.A. Light and M. Marletta (Eds.), Oxford Univ. Press 1997.
3. "Fully discrete multiscale Galerkin BEM", (with T. von Petersdorff) in: "Multiresolution Analysis and Partial Differential Equations", W. Dahmen, P. Kurdila and P. Oswald (Eds.), "Wavelet Analysis and its applications" Vol. 6 Academic Press, New-York 1997, 287-346.
4. "Generalized FEM for numerical homogenization", Lecture Notes in Computational Science and Engineering T.J. Barth, T.F. Chan, R. Haimes (Eds.) Springer-Verlag, Heidelberg, Volume 20, 197-237, 2001 (with A.M. Matache).

Publications in refereed journals

1. The Method of Arbitrary Lines, C.R.Acad.Sci. Paris, t.**312**, Série I (1991) 181-187 (with L. S. Xanthis)
2. Kernel Properties and Representations of Boundary Integral Operators, Mathematische Nachrichten **156** (1992) 187-218 (with W. L. Wendland)
3. Numerical Quadrature of Singular Surface Integrals in Boundary Element Methods, Numerische Mathematik **62** (1992) 343-369 (with W. L. Wendland)
4. On Singularities of Solutions of the displacement Problem of Linear Elasticity Near the Vertex of a Cone, Archive for Rational Mechanics and Analysis **119** (1992), 197-227 (with V. A. Kozlov and V. G. Maz'ya)
5. The Method of Arbitrary Lines: An hp Error Analysis for Singular Problems (6 pp.), C.R.Acad.Sci. Paris, t. **315**, Sér. I (1992) 1451-1456 (with L.S. Xanthis).
6. On Singularities of Solutions to the Dirichlet Problem of Hydrodynamics near the Vertex of a Cone, Journal für die Reine und Angewandte Mathematik **456** (1994), 65-97 (with V. A. Kozlov and V. G. Maz'ya).

7. Optimal Shear Correction Factors for Hierarchic Plate Models, *Mathematical Modelling and Scientific Computing* **1** (1994), 1-30 (with I. Babuška and J.M. D'Harcourt).
8. Numerical Evaluation of Singular and Finite-Part Surface Integrals on Curved Surfaces using Symbolic Manipulation, *Computing* **49** (1992) 279-301 (with R. Kieser and W.L. Wendland).
9. A posteriori error estimation for hierarchic models of elliptic problems on thin domains, *SIAM J. Num. Anal.* **33** (1996) 221-246 (with I. Babuška).
10. Boundary Layers of Hierarchic Beam and Plate Models, *Journal of Elasticity* **38** (1995), 1-40 (with S. Wright).
11. Locking Effects for the Reissner-Mindlin plate model, *Mathematics of Computation* **64** (1995) 461-482 (with M. Suri and I. Babuška).
12. Boundary Layer Resolution in Hierarchic Plate Modelling, *Mathematical Methods in the Applied Sciences* **18** (1995), 345-370.
13. Boundary Layer Resolution in Hierarchic Models of Laminated Composites, *R.A.I.R.O Analyse Numérique, Sér. rouge* **28** (1994), 517-537.
14. The optimal p -version approximation of singularities on polyhedra in the boundary element method, *SIAM J. Num. Anal.* **33** (1996) 729-759 (with M. Suri).
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16. On the a posteriori estimation of the modeling error for the heat conduction in a plate and its use for adaptive hierarchical modeling, *Applied Numerical Mathematics* **14** 1994, 5-21 (with I. Babuška and I. Lee).
17. Wavelet discretization of first kind boundary integral equations on polygons, *Numerische Mathematik* **74** (1996) 479-519 (with T. von Petersdorff).
18. Variable order composite quadrature of singular and nearly singular integrals, *Computing* **53** 173-194 (1994).
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20. Multiwavelets for second kind integral equations, *SIAM J. Num. Anal.* **34** (1997) 2212-2227 (with T. v. Petersdorff and R. Schneider).
21. The p and hp version of the finite element method for problems with boundary layers, *Math. Comp.* **65** (1996) 1403-1429 (with M. Suri).
22. Finite element analysis of nonlinear orthotropic hyperelastic membranes, *Computational Mechanics* **18** (1996) 269-278 (with J. Humphrey and S. Kyriacou).

23. On the extraction technique in boundary integral equations, (with W.L. Wendland), Math. Comp. **68** (1999) 91-122.
24. Quadrature for hp -Galerkin BEM in R^3 (with S.A. Sauter), Numer. Math. **78** (1997), 211-258.
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32. An hp -FEM for convection-diffusion problems in one dimension (with J. Melenk) IMA J. Num. Anal. **19**(1999) 425-453.
33. Analysis of membrane locking in hp -FEM for a cylindrical shell ZAMM **78** (1998) 663-686 (with K.Gerdes and A.M. Matache).
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45. The *hp* streamline diffusion FEM for convection dominated problems in one space dimension, (with M. Melenk) *East West Journal of Appl. Math.* **7**(1999) 31-60.
46. Stabilized *hp*-Finite Element Methods for First-Order Hyperbolic Problems, *SIAM J. Numer. Anal.* **37** (2000) 1618-1643 (with E. Süli and P. Houston).
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91. Analytic regularity of Stokes flow on polygonal domains in countably weighted Sobolev spaces (with B.Q. Guo), *Journal of Computational and Applied Mathematics* **190** Issues 1-2 (2006) Pages 487-519.
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